Developing RNA Vaccines to Manage Pepino Mosaic Virus

Applicant:
State University

Abstract:
Partner with State University (the University) to explore the mechanisms of the induced resistance of Pepino mosaic virus in tomatoes and to develop novel immunization approaches to induce the resistance

Project Purpose:
This one year project proposes to develop novel approaches to immunize tomato plants against Pepino mosaic virus (PepMV). Specific objectives are to determine if the naturally induced resistance in tomatoes is mediated by RNA-based immunity, develop two alternate vaccines that can effectively induce the resistance, protect tomato plants from PepMV, and eliminate the risk of late PepMV outbreaks.

Fresh tomato production in the U.S. is valued at $1.4 billion annually. Tomato production, particularly greenhouse tomato production, has expanded rapidly within the State between 2004 and 2008. However, the emergence of PepMV as a pathogen poses a serious challenge to the tomato industry. Infection by the virus affects the quality of fruit and reduces its size, which results in up to 38 percent of the tomato fruit becoming downgraded.

Some tomato plants have been observed to recover naturally from an early infection. These plants then exhibit neither the symptoms nor the effects of PepMV infection, and continue to produce normal tomato fruit without yield loss, as if they have become resistant. Scientists have observed similar recoveries from viral infections in other plant species. Studies in the last decade have revealed that this type of recovery is due to RNA interference (RNAi). RNAi has the ability to detect and degrade invading viral and other nucleic acids. If the recovery of tomato plants from an early PepMV infection is indeed a manifestation of RNAi-based resistance, it opens up the possibility of immunizing tomato plants with a sequence fragment or an attenuated strain of PepMV.

The University presently has received matching funds from the USDA Special Projects Grant Program to provide one-half salary for the Senior Research Specialist. This individual will coordinate most of the laboratory operations and perform a majority of the laboratory and greenhouse experiments. This project will not be a duplicative effort, but rather enhance the program by providing additional dollars to elevate the part-time position to full time status.

Potential Impact:
With 3,808,556 cartons produced in 2008, the tomato is one of the top ten commodities in the State. Diseases and pests have caused major problems for fresh tomato production in the State, resulting in financial hardship for some growers. Smaller growers are facing these problems as well. Developing effective and practical means to control PepMV, as proposed in this project, will provide timely and much needed assistance to the State tomato growers. By managing the viral disease, growers will be able to improve tomato yield and quality, consequently increasing profits. In turn, these operations will attract more businesses to the State, making the State's tomato industry more competitive.

Expected Measurable Outcomes:

Characterize the natural resistance of tomatoes to PepMV and develop a vaccine to protect tomato plants from PepMV (**GOAL**) in fresh tomato production. No such knowledge and technology currently exist (**BENCHMARK**). To disseminate this new knowledge and technology, research findings will be presented to over 100 growers at the 2013 annual Agricultural Center Field Day and over 1500 scientists at the 2013 annual American Phytopathology Meeting (**TARGETS**). The success of the project will be measured by attendance (**PERFORMANCE MEASURE**) at both meetings.

Work Plan:

Project Activity	Who's Responsible	Timeline
Determine if RNAi is involved in the natural resistance	University Researchers and Students	Sept. 2012 – Jan. 2013 (Begin)
Construct an infectious cDNA clone for PepMV	University Researchers and Students	Oct. 2012 – Jan. 2013
Construct an RNA immunization vector	University Researchers and Students	Jan. 2013 – Feb. 2013
Develop an attenuated PepMV strain	University Researchers and Students	Jan. 2013 – May 2013
Test the efficacy of the immunization vector	University Researchers and Students	March 2013 – June 2013
Test the protection of tomato plants using the attenuated PepMV strain	University Researchers and Students	June 2013 – Aug. 2013
Results presentation at APS	Project Investigator	Aug. 07-10, 2013
Results presentation and dissemination at AC field day	Project Investigator	Nov. 6, 2013 (End)

Budget Narrative (Total $63,523.00):

Personnel ($27,000.00)

Expenses of $21,000.00 are requested for one half-time Senior Research Specialist (0.5 FTE) who will coordinate most of the laboratory operations and perform a majority of the laboratory and greenhouse experiments. Additionally, the specialist will be responsible for data entry and record keeping. An additional $6,000.00 is requested to support two undergraduate student researchers. The undergraduate students will work in Dr. Jones' laboratory and learn experimental skills while assisting the Project Investigator (PI) and the research specialist in various aspects of the project.

Fringe Benefits ($9,585.00)

The current fringe benefit rates at the University are 44.74% ($9,387.00) for the research specialist, 3.3% ($198.00) for undergraduate students.

Travel ($1,608.00)

Total funds of $518.00 are requested for in-state travel to conduct field surveys of PepMV in City X (2 overnight trips) and in City Y (2 day trips) and to attend the annual Agricultural Center Field Day (1 day trip). The total in-state travel cost will consist of car rental (7 days @ $32.00/day), lodging (2 nights @ $60.00), and food (6 days @ $29.00/day). In addition, $1,090.00 in out-of-state travel funds are requested to defray the travel expense for the PI or

designee to attend and present their research findings at the annual American Phytopathological Society meeting in Nashville, TN in 2013. The cost comprises of flight from City Z to Nashville ($350.00), lodging (5 nights @ $99.00), and food (5 days @ $49.00/day).

Equipment ($5,000.00)

For the purchase of a 96-well thermocycler to accommodate the large numbers of PCR-related experiments outlined in the project. The University donates the use of one ultra-high speed centrifuge, two high speed centrifuges, and three microcentrifuges, and one Biorad iCycler real-time PCR system (with a usage value of $20,000.00) for the entire duration of the project as matching contributions for this project. All the equipment listed above is required for completion of the project.

Supplies ($14,830.00)

The cost of greenhouse supplies for growing tomato plants are estimated at $500.00. This includes 400 pots, soils (10-50 lb bags), and fertilizers (Osmocote, 5 lb). Laboratory supplies including chemicals, biochemicals, molecular biology reagents, enzymes, columns for RNA and DNA isolations, plant and bacterial media, plastic- and glass-ware, gel boxes and trays, are estimated at an average cost $1,000.00 per month ($12,000.00 per year). Funds are also requested for two sets of Gilson Pipetteman (each set consisting of 4 pipettes ranging from I µl to 100o µl, $1,165.00 for each set), totaling $2,330.00.

Other ($5,500.00)

A total of $2,500.00 is requested to defray partial costs of publishing the results generated from the project. In addition, $3,000.00 is requested for rental of the transgenic greenhouse at the University Agricultural Center ($250.00 per month) which is necessary to carry out experiments on tomato plants.

Matching Funds

The University will contribute $17,472.00 to this project, which consists of 20% of the PI's salary and fringe benefits.

Project Oversight:

The PI has extensive experience working with RNA viruses, RNAi-mediated viral resistance in plants, and molecular characterization of viral genes and functions. The experiments outlined in this project are well within his area of expertise. The PI will direct and implement the project. Weekly meetings will be held between the PI, a research specialist, and other lab members involved in this project to assess its progress, and quarterly progress reports will be posted on the proposed website. The PI will periodically consult with the Departmental Business Manger to ensure that expenditures remain within budget categories and that funds are spent appropriately.

Project Commitment:

The project PI, will commit 0.2 FTE to administer the project, to supervise and conduct proposed experiments, to perform required data analyses, and to communicate research progress and findings to the sponsoring agency. Additionally, 1 FTE research specialist and two part-time undergraduate researchers will work on the proposed project. The administrative personnel at The University have extensive expertise in overseeing and administering contracts and grants from a variety of organizations.

Farm-to-School: Building New Markets for Specialty Crops in Schools

Applicant:
State Department of Agriculture Farm to School Program

Abstract:
Develop an online toolkit and conduct farm-to-school workshops for foodservice buyers and staff on how to purchase and prepare local fruits and vegetables; provide classroom resources to educate students about the benefits of eating fruits and vegetables; conduct grower trainings to assist specialty crop producers in selling to institutional markets; develop resources and hold events to help farmers to understand and prepare for Good Agricultural Practices (GAPs) food safety certification as required by many schools and foodservice companies; and survey farmers and processor to inventory the current capacity for post-harvest processing required to meet the school foodservice market.

Purpose:
School buyers often require processed products, due to labor or facilities constraints, yet farmers may have limited knowledge of or access to necessary processing facilities. Farmers could expand their markets by producing value-added, consumer ready products but do not have the processing equipment, skills or resources to manufacture their own products and need processors who can help develop and manufacture these products. However, farmers need guidance as to the opportunities and requirements for selling to schools. In addition to processing and food safety requirements, few farmers are aware of the purchasing procedures of schools.

Schools also need training on purchasing from farms or smaller distributors and on building menus that cost-effectively use seasonal produce. Local schools also increasingly require Good Agricultural Practices/Good Handling Practices (GAP/GHP) certification from farm vendors as assurance that the crops were grown in accordance with recognized standards to minimize health risks. Consequently, local small/medium sized farmers need to continue GAP/GHP audit training in order to compete with larger corporate farms.

Currently, there are not any funded or implemented projects that benefit this situation. It is also important to note, that although meats, grains, and other non-specialty crop commodities will be included in this project, the project staff have utilized other funding sources to provide matching funds. The project staff will document all funds to ensure that Specialty Crop Block Grant Program funds are only utilized to enhance the competitiveness of specialty crop commodities.

Potential Impact:
The State is a major producer of fruit and vegetables. Consequently, the State's specialty crop producers will be broadly impacted by the implementation of this project. There are approximately 10,0000 small (less than $250,000 in sales) and medium sized ($250,000 to $1 million) fruit and vegetable growers will benefit from this project; however, food processors, distributors, and others involved with providing specialty crop foods will also benefit.

Schools on the other hand represent new market opportunities for these farmers where they may be able to sell their crops directly and receive full value. The State's schools participating in the National School Lunch Program served approximately 85 million lunches

in the 2007 academic year and an additional 26 million breakfasts. They spent over $350 million dollars on school food, associated costs, and labor. An additional $1.6 million was spent in 2009 on fresh fruit and vegetables as part of the USDA Fresh Fruit and Vegetable Program and the State Grown Fruit and Vegetable Program.

Experience shows that eating habits developed at school age carry on into adulthood. It is expected that exposure to more fruit and vegetables in school, as opposed to highly processed foods, will continue and increase demand for these products in the future. Indirectly, schools and students will be beneficiaries. Students will benefit from improved nutrition and health if more fruit and vegetables are included in their diets.

Expected Measurable Outcomes:

OUTCOME #1: Increase in schools buying direct from specialty crop growers.
The goal of this project is to expand the market for State-grown specialty crops in schools. Benchmark data comes from a survey conducted in 2011, which requested information from all 295 school nutrition directors in the State. The survey indicated that twenty-nine districts directly purchased from local producers in the past year (2010). Data will also be collected from, the Office of the Superintendent of Public Instruction, purchasing records for the State Grown Fruits and Vegetable grants to learn how many and what farms are selling to these schools, and which specialty crops are proving to be popular in schools. The target is currently set for 10% of school districts (30 districts) purchasing State-grown fruit and vegetables by September 2015. Performance Measures will be based on biennial surveys of State school districts, the number of schools districts reporting that they are purchasing from local farms or buying Local-Farm grown specialty crops through distributors.

OUTCOME #2: Increased numbers of specialty crop growers eligible to sell to schools by obtaining GAP/GHP certification.
Another goal of this project is to increase the number of specialty crop growers with the certification required by many school districts. In order to benchmark the data, the State currently has 143 specialty crop farms that have passed the GAP audit. As such, the targeted number is fifty new farms with a GAP/GHP certification by September 2012. Performance Measures will include the number of farmers participating in the workshops, number of downloads of GAP/GHP training materials from DA website, and the number of farmers certified by DA's Fruit and Vegetable Inspection Program who report having attended these workshops.

Work Plan:

The baseline capacity and production information on processing needs of growers will be gathered and the current availability of processing facilities in the State. Training materials will be developed and produced in partnership with the Department and Department of Education (DE) Farm-to-School staff. We will collaborate to:

a) Develop farmer training programs concerning institutional markets, which will focus on GAP/GHP certification and help them prepare for the audit process.
b) Develop training programs for foodservice personnel to purchase specialty crops from State farmers, which will include identification of locally grown fruit and vegetables and procedures for purchasing directly from farmers.
c) Create specialty crop "toolkit" for school food purchasers to include seasonal recipes and menu planning ideas suitable for school use, nutritional and agricultural educational information, and specialty crop purchasing information.
d) Attend the region Farm-to-School Network meetings to exchange expertise and program ideas with other states to increase specialty crop use in schools.

Farmers will also be educated in order to prepare them for GAP/GHP audits:

a) Present GAP/GHP on-farm training sessions for farmers.
b) Produce a video of GAP training requirements and a sample on-farm audit in partnership with State University Small Farms Team and the County Extension.
c) Develop a GAP/GHP support webpage to make materials available to increase awareness, understanding, and address audit process concerns for small farmers.
d) Reach out to farmers, especially minority and/or socially disadvantaged farmers and those with small- and medium sized operations, to make sure they are aware of these resources and the GAP/GHP certification option.

Timeline of Project Activities

What: Hire 1 FTE to coordinate grant activities
Who: Jane Doe (JD)/Robert Smith (RS) **When:** Sep 2012 (BEGIN)

What: Planning period for GAP/GHP outreach activities, assess benchmark data on GAP/GHP certification
Who: JD/Coord **When:** Oct-Dec 2012

What: Planning period for farmer and foodservice trainings
Who: JD/Coord **When:** Jan-May 2013

What: Website set-up for foodservice toolkit
Who: JD/Coord/Univ/DA IT **When:** May-Aug 2013

What: GAP/GHP on-farm event and video shooting, editing and production (inspectors present for on-farm event and video shoot and provide expertise for production)
Who: JD/SFDM/Coord **When:** Jul-Dec 2013

What: Survey school nutrition directors to determine numbers and levels of spending on specialty crops grown in State
Who: JD/Coord **When:** Oct-Dec 2012

What: Farmer Training Events (incl. GAP training) – 3 events
Who: JD/Coord **When:** Jan-Mar 2014

What: Foodservice Training events – 3 events
Who: JD/Coord **When:** May-Jun 2014

What: GAP/GHP On-Farm Event
Who: JD/SFDM/Coord **When:** Apr-Jul 2014

What: Processing/Distribution Survey to farms and processors (Development based on info to be provided by CHC and DA Farm-to-School staff)
Who: JD/Coord **When:** Sep-Nov 2013

What: Processing Study Analysis, Report and plan next steps for Processing and Distribution Project – outreach, farmer-processor-buyer summits, etc.
Who: JD/Coord/SFDM/RS **When:** Dec 2013 – Apr 2014

What: Farmer Training events (incl. GAP training) – 3 events
Who: JD/Coord **When:** Jan-Mar 2015

What: Foodservice Training events – 3 events
Who: JD/Coord **When:** May-Jun 2015

What:	Gather and assess data on GAP/GHP certification during grant period		
Who:	JD/Coord	**When:**	Jun-Jul 2015
What:	Final Reporting on Grant Activities		
Who:	JD/Coord/RS	**When:**	Jul-Sep 2015 (END)
What:	Survey School nutrition directors to determine numbers and levels of spending on specialty crops grown in State (Follows grant period, but allow us to gauge change and interest for next steps)		
Who:	JD	**When:**	Oct-Dec 2015

Budget Narrative (Total $250,000.00):

Personnel ($124,000.00)

One full time staff person will be hired to coordinate the activities of this grant. They will need to have familiarity with the farm-to-school and/or direct marketing agriculture field, and so have been budgeted at a salary of $34,000 for year 1 and $45,000 for years 2 and 3, to match the agency job level qualified to independently develop and implement surveys, programs, evaluations and economic analysis.

Benefits ($31,000.00)

Benefits for the full time staff person to be hired to coordinate grant activities is estimated at 25 percent, for annual benefits at $8,500 for year 1 and $11,250 for years 2 and 3.

Travel ($8,000.00)

($7,762 + incidental travel of $238). Travel for training to be conducted around the state, in locations to be determined. Estimates are based on average distances:

Six food service training events and six farmer training events = $4,596:
Twelve 300 mile trips at .55/mile= $1980; 12 nights at $70 is $840 x 2=1,680; meals 12 days at $39 is $468 x 2 = $936

Nine planning meetings with partners – $2412 Total
City X - $200 mileage per trip x 3 = $600
Small Farms Advisory Board $906 (3 trips to City Y at $162 mileage; hotel $70 x 2 = $140)
Small Farms Team $906 (3 trips to City Y at $162 mileage; hotel $70 x 2 = $140)

GAP/GHP on-farm events = $754
City Z $376: $70 mileage, 1 night $94 x 2 = $188, $59 meals x 2 = $118
City A: $378 mileage, 1 night $70 x 2 = $140, $39 meals x 2 = $78

Supplies ($3,000.00)

$500 x 3 years for office supplies & materials to support content for online toolkit; $500 x 3 years for purchasing education materials

Contractual ($23,000.00)

Stipends for GAP/GHP Video Shoot/Edit: flat fee stipends for 5 youth at $2,000 each to be coordinated through County Extension Hmong Youth Film Project. Youth will film and edit video in close collaboration with DA staff and under supervision of SU Hmong Outreach Coordinator.

Online Toolkit Development and Adaptation: this $10,000 contract will take the online toolkit donated by University State X, and adapt it for DA use and web specifications. Personnel under this contract will be paid at a rate of $60/hour. Any leftover funds will be used to develop State-specific content for the toolkit.

Processing Study Analysis: this $3,000 flat rate contract will analyze the production information on processing needs of growers and current availability of processing facilities and compile a report.

Other ($61,000.00)

SU Small Farms Team and Small Farms Advisory Board Meetings - $4,000 annually for the three years ($12,000), to be able to meet in person with team and board members from around the state to plan, develop, and implement training and outreach to small farms and minority and socially disadvantaged farmers. These farms are those most likely to need GAP/GHP certification to sell to schools.

Copies of GAP/GHP video onto DVD - $2,000 for getting DVDs made and packaged

GAP/GHP On-Farm Trainings: $4000 for administration costs, paperwork, surveys and stipends to host farms.

Processor Survey: $10,000 for sampling, survey printing and mailing to farmers and processors around the State, using services of National Agricultural Statistics Service, information from the Processors Association and other sources.

Farmer Trainings: $2,000 x 6 ($12,000) for space rental, educational materials, trainer stipends and other costs.

Foodservice Trainings: $3,500 x 6 ($21,000) for space rental, educational materials, trainer stipends, food for demonstrations and hands-on workshop.

Project Oversight:

The grant will be managed and supervised by Jane Doe, Program Manager for the DA Farm-to-School Program. She will hire project staff and oversee their work, progress on the project, adherence to timelines, spending and coordination with other agencies, including the State, and other partners. Ms. Doe will consult and partner with others in the Department to strategize and implement grant activities. In addition, Robert Smith, Chief, Marketing and Economic Development, will meet weekly with Ms. Doe to monitor progress, identify issues or concerns and assure that the project is progressing according to the timelines presented. In addition, DA's fiscal office and contract staff will monitor contract timelines to assure compliance with reporting and billing requirements. They will also monitor for compliance with appropriate state and federal rules and procedures.

Project Commitment:

This project is building on work done in collaboration with a number of partners over the past couple of years. Many of those partners will work with DA on the proposed projects, as detailed below. The SU County Extension service will loan video and editing equipment; SU Small Farms Team will conduct outreach about GAP's; the Institute for Sustainable Agriculture and University Extension will structure for foodservice toolkit website and page structure and coding.

Measuring Irrigation Water Quality on Fruit and Vegetable Farms

Applicant:
ABC Private University

Abstract:
Partner with State B, C, D, E, F, and G to objectively measure the quality of irrigation water used on fruit and vegetable farms in several states to help shape future irrigation water standards, improve on-farm risk assessment, provide strategies for implementing a water testing program, aid in interpreting water testing results, and provide assistance for understanding when mitigation strategies should be adopted.

Project Purpose:
This project is focused on the collection of scientific data on irrigation water quality in the seven states to contribute to the National Irrigation Database organized by the National GAPs Program at Cornell University for fresh fruit and vegetable production in the National Food Safety Program. Consequently, this activity may help shape future national irrigation water standards. Moreover, educational workshops on irrigation water quality management will be provided to Extension professionals and producers. This effort will improve on-farm risk assessment, provide strategies for implementing a water testing program, aid in interpreting water testing results and provide assistance for understanding when mitigation strategies should be adopted.

Fruit and vegetable crops tend to be irrigated with surface water sources, such as ponds and streams. While there is concern with all sources of water for pre-harvest use, surface water has a higher probability of being exposed to more fecal contamination than ground water. This is expected to pose greater human health risk than irrigation water from deep aquifers with properly constructed and protected wells. In most cases, the sanitary quality of surface water used for irrigation is not known because it is not regularly tested.

This project has not been submitted to or funded by another Federal or State grant program.

Potential Impact:
Contamination of fresh fruits and vegetables with pathogens can occur anywhere in the supply chain, and once it occurs, it is difficult, if not impossible, to remove. The FDA Produce Safety Action Plan states that the most likely points of contamination of high risk commodities by key pathogens occur during pre-harvest production. Among these points, one of the most likely potential mechanisms of *E. coli* O157:H7 and *Salmonella* contamination is water (irrigation or flooding/runoff from adjacent land).

The fruit and vegetable industry accounts for nearly $75,000,000 in annual sales and is comprised of over 5,000 farms over the seven involved states. This project will impact the local and regional fruit and vegetable industry by providing an objective assessment of the quality of water currently used for irrigation, evaluating the ability of currently-used criteria to discern contamination by key pathogens and providing information to Extension professionals and producers to improve on-farm irrigation water management. Furthermore, by maintaining buyer and consumer confidence in and demand for fruit and vegetable production in the State will potentially enhance farm viability and profits.

Expected Measurable Outcomes:
The **GOAL** of this project is to participate in the development of a National Irrigation Database. The database will provide new scientific data to support comprehensive efforts by

the produce industry and public health regulators to create meaningful and realistic water quality standards that minimizes microbial food safety hazards to fresh and fresh-cut vegetables posed by surface irrigation (**TARGET**). There has not previously been an effort to measure current irrigation water quality (**BENCHMARK**). Irrigation water samples will be taken four times during the production season. Results will be compiled and analyzed by crop, region, source and time of sampling. These results will be added to the National Irrigation Database (**PERFORMANCE MEASURE**).

Work Plan:

Baseline water quality data will be collected four times during the production season on water samples on 10 farms in each of 3 geographically diverse regions of the State, with varied irrigation sources (rivers, ponds, lakes, streams, wells, springs, etc.). A total of thirty farms will be chosen for each year of the project, providing data from 60 farms over the 2 year life of the project. This data will be added to the National Irrigation Database developed by the National GAPs Program at Cornell University.

Quality analyses will include quantified generic *E. coli,* specific conductance, turbidity and pH and will be performed by certified private laboratories capable of these analyses. Since one of the objectives of this project is to educate growers and farm managers about the importance of on-farm irrigation water management practices for microbiological criteria, this is a perfect opportunity to conduct one-on-one training for water sampling with individual growers. Repeated site visits will provide training reinforcement and quality control. A minimal component site survey and adjacent land-use analysis for potential water quality impacts will be conducted at each sampling site. The site evaluation template will be adopted from the USDA GAP audit checklist.

September 2012 to September 2014

2012	
(September - December)	➢ Develop workshop materials and factsheets for water sampling, testing and mitigation strategies to reduce microbial load
2013	
(April – September)	➢ Collect irrigation water samples from 10 farms in each of 3 geographic regions, four times over the production season (10 farms x 3 regions x 4 sampling times= 120 samples)
(August – November)	➢ Develop workshop materials and factsheets for water sampling, testing and mitigation strategies to reduce microbial load
2014	
(April – September)	➢ Collect irrigation water samples from 10 farms in each of 3 geographic regions, four times over the production season (10 farms x 3 regions x 4 sampling times= 120 samples)
(August – November)	➢ Provide workshops on irrigation water quality and management for Extension professionals and growers in 3 regions

Budget Narrative ($54,576.00):

Budget Item	Year 1	Year 2	TOTAL
Personnel*			**$ 9,480.00**

Student Assistant	$ 4,680.00	$ 4,800.00	
Fringe Benefits*			**$ 3,792.00**
Benefits (40%)	$ 1,872.00	$ 1,920.00	
Supplies*			**$ 1,750.00**
Supplies	$ 1,750.00	$ 0.00	
Travel*			**$ 9,000.00**
Travel	$ 3,750.00	$ 5,250.00	
Contractual*			**$ 22,960.00**
XYZ Laboratories (water testing)	$ 11,980.00	$ 10,980.00	
Other Costs*			**$ 3,050.00**
Shipping Costs	$ 550.00	$ 0.00	
Publication Costs	$ 0.00	$ 1,000.00	
Workshops, Materials, and Media	$ 0.00	$ 1,500.00	
Funds Requested	$ 24,582.00	$ 25,450.00	**$ 50,032.00**
Indirect costs (8.3% allowable)	$ 1,978.00	$ 2,566.00	**$ 4,544.00**
	$ 26,560.00	**$ 28,016.00**	
TOTAL FUNDS REQUESTED			**$ 54,576.00**

Personnel Narrative

We plan to hire one student to assist with this project through data entry and training preparation. In Year 1, this individual will work a total of approximately 4 hours per day at $13.00 per hour for 2 days per week for 45 weeks (**$4,680.00**). In 2014, the student assistant will maintain the same wages; however, he or she will also receive a stipend of $120 to attend and present at one of the grower workshops for a total of **$4,800.00**.

Fringe Benefits Narrative

The fringe benefit rate for the student assistant is 40 percent; therefore, in Year 1, the project will pay **$1,872.00** for the student assistant and **$1,920.00** for 2014.

Supplies

Dr. Joe Smith and his research assistant will need research supplies such as sample tubes, boxes and trays for transportation, and water samplers. These items will total **$1,750.00**.

Travel Narrative

ABC Private University's established automobile mileage rate is $0.40/mile. To complete the objectives of this project, the project staff will need to travel an average of 170 miles in the eastern region of the State, 360 miles in the central region of the State, and 620 miles in the western region of the State. This is a total of 1,150 miles for one trip or $460 (1,150 miles x $0.40). There will be a minimum of 4 trips per year for a total of **$1,840** along with an additional average 200 miles per region to collect samples from each farm for a total of **$960** (4 trips x 3 regions x 200 miles x $0.40). There will be 4 trips to the central and western regions that requires 2 nights at hotels. These charges will total **$560** ($70/night x 8 nights). ABC Private University's Per Diem rate for meals ($39/day), while traveling for 10 days, will total to **$390** ($39/day x 10 days). Each of the items included in the Travel, Training, and Workshop section totals to the amount of (**$3,750.00**) for the Year 1 budget.

The sampling travel costs will be the same for the Year 2 budget; however, additional costs for travel to two workshops in each region (one for Extension agents and one for growers). The eastern region will not require travel costs; therefore, the total amount needed for travel to 2 regions for 2 workshops is $375 per event for a total of **$1,500.00**. Consequently, the 2014 budget is **$5,250.00** ($3,750 + $1,500).

Contractual Narrative

We will contract with XYZ Laboratories in order to perform the water analysis of all the samples gathered by the project investigators. This quality analysis will be performed for a flat rate of **$10,980** per year of the project for a total of **$21,960.00** ($10,980 x 2).

Each lab that enters data will need a secure password and some training for data input. This will have an initial cost (approximately **$1,000.00**). Currently quality control procedures are performed for all data entered into the database with the lab data form. This too requires time, but is not necessary once the lab understands the data entry portal and how it works.

Other Costs Narrative

There are certain areas in the State that are considered to be inadequate for transferring water samples by vehicle. The cost associated with shipping these samples is **$550.00**.

In year 2, workshops will be offered for Extension professionals through train-the-trainer sessions and growers in each of the 3 regions of the state, covering proper irrigation water sampling, choosing the proper sanitary water tests, interpreting the test results and selecting mitigation strategies (**$1,500.00**). Training materials will be developed both for hard-copy and web dissemination. Presentations will also be developed for the workshops and available to the Extension professionals for use in their home counties (**$1,000.00**).

Project Oversight:

Dr. Doug Smith will oversee the advancement of this project, which will include data collection, analysis, and outreach activities. The labs doing the analysis will have access to the database so the data can go directly into the database. Dr. Doug Smith also will work directly with growers and Extension professionals across the state to sample water from fruit and vegetable farms using various irrigation sources. Outreach programs will be offered to growers for implementing water testing programs, interpreting water test results and understanding when mitigation strategies should be adopted.

Project Commitment:

Project partners are committed to the implementation of all aspects of this water quality project. In fact, there has been a Memorandum of Understanding signed between all States involved in this project to ensure the quality of the cooperation between these entities. The ABC Private University will lead implementation of the overall multi-state endeavor. Specifically, it will be responsible for the research, information, and outreach.

Multi-State Project:

Total Grant Request: $204,576.00

The State:	$54,576				
State B:	$25,000	***State C:***	$25,000	***State D:***	$25,000
State E:	$25,000	***State F:***	$25,000	***State G:***	$25,000

The project proposed here is intended to help fill the nationwide irrigation water quality knowledge gap by compiling and analyzing water samples for generic *Escherichia coli* (*E. coli*) densities, pH, specific density and turbidity that will be incorporated into the National Irrigation Database. Collaborators in six other states are interested in participating in this nationwide effort. The states involved agreed to pursue funds to complete water quality work and enter data for the National Food Safety Program.

Specifically, the State has partnered with ABC Private University to act as the coordinating organization of this network of seven different states. ABC Private University will work with a

board of water quality specialists that represent each state. The board has members and associates serving on committees including research, analysis, and outreach activities for the National Irrigation Database. This project has the full support of each participating States' Departments of Agriculture. The State will take the coordinating role in monitoring the progress of this project. 

Enhancing Sustainable Specialty Crop Production

Applicant:
Farm Extension & Research Center

Abstract:
Support training and field activities for farmers in a twenty-two county area in the northwest part of the State, which includes sustainable soil and water management, insect, disease, and weed management, fruit and berry applied research, and business planning.

Purpose:
The retail and wholesale demand for local and sustainable vegetables, fruit, and greenhouse crops is currently growing at a rate of 10 to 20 percent per year. In addition, consumer demand is strong for direct-from-the-farm products through farm stands, pick your own operations, community supported agriculture programs, and internet based sales. Yet, resources for hands-on training of new and diversifying farmers are limited and must be increased to satisfy increased demand.

The Farm Extension & Research Center and its flagship plant are capable of utilizing grant funds to enhance its current program offerings of 1) an intensive 8-week specialty crop workshop series and 2) an ongoing workshop series for specialty crop farmers in a 22-county area in the northwest region of the State. This would be a new endeavor, which has not received any other Federal or State grant funds.

Potential Impact:
Programs at the Farm reach out to a diverse group of participants:

- Tobacco farmers who are interested in diversifying to specialty crops
- Row crop, dairy, and beef farmers interested in diversifying to specialty crops
- Young farmers who do not have access to land or sufficient capital but are interested in organic & sustainable specialty crop farming
- Other traditional farmers who want to diversify
- Persons who want to farm as a second career
- Persons who want to farm in retirement

Based on the business plans developed by the enterprises at the Farm, average gross revenue was estimated at $9,000 per acre. Given the early stage of the farm enterprises, it is likely that gross revenue will be greater than estimates in the first 3 to 5 years of operations. The program will conduct periodic surveys of all program participants and farm enterprises and request voluntary reporting of farm income related to the training program. In addition, gross revenue can be used to estimate infrastructure costs which are likely 2 to 3 times greater than gross revenue. The economic multiplier of infrastructure costs help to create economic activity for local farm supply businesses which helps keep farming communities to continue to thrive and allows farm supply businesses to remain profitable.

There are two levels of service that the program provides. One level is for the workshop series and apprentice farmers. A second level of service is for participants that wish to participate in individual workshops, mentor farmer presentations and field walks, as well as other demonstration activities. It is estimated that over the three years of this project:

- At least 50 individuals will participate in the 8-week workshop series
- At least 75 individuals will participate in the independent workshops

- At least 5 enterprises will be created at the Farm Enterprise program
- At least 20 enterprises will be enhanced on participant-owned farms through participation in 8-week workshop series

Expected Measurable Outcomes:

Goal 1:	Conduct 8-week workshop series in 2013 to at least 50 individuals for each workshop
Performance measure:	Registration records, weekly attendance records, and pre and post workshop self-assessment knowledge evaluations
Benchmark:	Determined by pre-training self-assessment tool (see attached)
Target:	Mean increase in specific knowledge areas will increase 40%
Goal 2:	Conduct 3 independent workshops in 2013 to be developed based on feedback from Goal 1 to at least 30 individuals for each workshop
Performance measure:	Registration records, attendance records, and pre and post workshop evaluation (see attached)
Benchmark:	Determined by workshop evaluation
Target:	At least 50% of participants will use knowledge gained to improve or enhance their farm-related enterprise

Work Plan:

The Farm will use grant funds to support training and field activities that include sustainable soil and water management, insect, disease, and weed management, applied fruit and berry research, business planning, and development of enterprise budgets for new and diversifying farmers. The Farm will also contract with a part-time mentor farmer to reinforce the mentoring capacity of the program and allow for targeted expansion of trainings and workshops.

Support for apprentice farmers will include field preparation, fertilization with and incorporation of litter, field preparation for bedding, as well as bed shaping with drip tape, with/without plastic. Ongoing support will be provided to growers in market development, production issues, and farm infrastructure. In addition, apprentice farmers will be providing educational support through field walks and other demonstrations.

This project will run September 2012 - September 2013.

Activity	***Responsible Entity***	***Timeline***			
		Sep to Dec 2012	Jan to Mar 2013	Apr to Jun 2013	Jul to Sep 2013
Develop criteria and solicit applications for Mentor Farmer position	*Planning Committee*	X			
Contract with Mentor Farmer	*Planning Committee*		X		

Plan 8-wk training series	*Planning Committee*	X			
Conduct 8-wk training series	*Planning Committee*		X		
Evaluate training series	*Planning Committee*			X	
Plan workshops	*Planning Committee*	X			
Conduct workshops	*Planning Committee*		X	X	X
Evaluate workshops	*Planning Committee*				X
Annual Purchase of Supplies	*CED & Smith*		X		
Annual/Final Report	*CED & Smith*				X

Budget Narrative (Total $22,800.00):

Supplies ($17,800.00)

These funds will purchase items under $5,000 that are needed for training programs on fruit, berry, and vegetable production at the Farm Extension & Research Center.

Item	Justification		Cost
Bedder	Planting Bed Preparation	$	1,500
Cool Bot/Walk in Cooler	Post Harvest Cooling of Produce	$	2,000
Cultivator	Tillage and Cover Crop Incorporation	$	1,200
Hand Tools	Crop Production and Weed Management	$	900
Hoop House	Season Extension	$	4,400
Irrigation Supplies	Upgrade Pump and Drip Irrigation System	$	1,100
Mulch Layer	Weed Management of Beds	$	1,500
Mulches, Biodegradable and Plastic	Weed Management of Beds	$	1,300
Rotary Mower	Weed and Cover Crop Management	$	1,800
Tiller	Planting Bed Preparation	$	2,100
		$	17,800

Contractual ($5,000.00)

A mentor farmer will be hired as a contractor at a flat rate to provide regular and consistent guidance to workshop participants and apprentice farmers. These activities will take place during the 8 week workshop.

Program Income ($4,750.00)

Registration Fee for 8 week workshop series - $2,500

Apprentice fee - $2,240

The income derived from this project will be reinvested into the program to support specialty crop farmers and help sustain and grow the project.

Project Oversight:

The County Extension Director, Dr. Brown will be responsible for project oversight, with assistance provided by Dr. Smith, County Agricultural Economic Development Coordinator. Both individuals serve on the Planning Committee which has a monthly meeting schedule that will enable activities to be implemented in a timely manner.

Project Commitment:

The Farm Extension and Research Center is a successful collaboration between County Cooperative Extension and Economic Development, with support from State University's College of Agriculture and Life Science as well as the Center for Environmental Farming Systems. The Farm Planning Committee includes representation from the partner institutions and agencies and has a monthly meeting schedule to plan and implement programs at the Farm. Programs during the past 2 years demonstrate a strong commitment to developing the capacity at the Farm and promoting educational activities that support farm viability.

Establish a Super Berry Market in the State

Applicant:

Jane Smith

Abstract:

This project is designed to increase the production of organic Super Berries, aronia, saskatoons, raspberries, elderberries, currants and gooseberries in the State. This will be completed through the research and test value added products as well as the design an organic berry producers' interactive website in order to share methods, growing tips, and organic opportunities.

Purpose:

Nutritional antioxidant-rich foods are growing in demand from the consumer marketplace due to the health benefits and medicinal nature that super foods provide. Fruits containing high levels of anthocyanins and flavonoids with beneficial nutrients such as antioxidants, polyphenols, minerals and vitamins, are known as Super Berries. Research found that such berries contain compounds that fight degenerative diseases, heart conditions, and cancer. Research also indicated that consumer demand exceeds production levels producers can provide and that demand is expected to grow. Most super fruits in the market today are imported from other countries making them difficult to obtain.

For these reasons, it is becoming increasingly necessary to expand berry acreage that will produce Super Berries. It is important that we foster the development of this market for the State and the Region. Since this is a new endeavor, the submitted proposed project has not been presented to or funded by another Federal or State grant program.

Potential Impact:

There are growers presently in adjoining states producing limited amounts of aronia berries; however, the market is still in its infancy. To our knowledge, we are the only producers of the aronia, saskatoon and elderberries in the State. This grant will enable us to increase production efforts, which increase formal alliances with other area producers in order to obtain contracts with large juice and health/wellness processors.

Most berry plants take 2-4 years before their first measurable harvest; therefore, traditional farmers are reluctant to commit production farm ground to this type of specialty crop. It's our belief that as the market grows, the potential will be seen and farmers may be more willing to plant the healthy, alternative crop on their non-productive terrain as these berries thrive in timber woodlands, sand/gravel loams, etc. and can provide an additional income stream while taking up a minimal amount of acreage in order to be successful.

Each mature aronia bush produces up to 40 pounds of berries. We plan to increase production level to 2500 lbs of berries and help meet consumer demand.

Expected Measurable Outcomes:

The **GOAL** of this project is to increase the number of growers and producers of Super Berries. Currently, there is only one known grower of Super Berries in the State (**BENCHMARK**). As such, we will assist in the establishment and development of 3 to 4 additional Super Berry producers by fall 2013 (**TARGET**). This growth will be tracked through the creation of partnerships and berry establishments through the grant period (**PERFORMANCE MEASURE**).

Another **GOAL** of this project is the design and growth of an online web portal to increase the awareness of Super Berry potential and related health benefits. There is not any current **BENCHMARK** data for the website portal; however, we expect approximately 150 website hits each month and an increase in the number Super Berry plant sales (**TARGET**). Project staff will track the monthly, website hits during the winter of 2013 through a tracking tool after the website is established in the fall 2013 (**PERFORMANCE MEASURE**).

Work Plan:

This project is planned to be executed in September of 2012, if funds are made available, and most activities will commence in late Fall 2012 with the exception of monitoring outcomes which will continue until Winter 2014.

1. Fall 2012 – Jane Smith and Ronald Smith will make efforts to gain/share knowledge, build relationships with area farmers, alternative crop producers and institutions interested in research and development.
2. Jane Smith and labor will prepare ground to be planted in spring of 2013 after ground thaw. This requires equipment rental, time/labor.
3. Jane Smith and labor will purchase plants and plant in two separate plantings; May and September.
4. Jane Smith and labor will cage and stake individual seedlings after each planting with possible mulching.
5. Jane Smith will research organic farming requirements and apply for organic certification.
6. Spring 2014 – Jane Smith and web design and maintenance contractor will design and maintain web portal to increase awareness, share opportunities and increase marketability and launch web portal in Fall 2014.
7. September 2014 – Final reporting on the project.

Outreach activities will be performed on a continual basis. These activities will include on-farm demonstrations and tours for potential producers as well as trips to establish partnerships with other Super Berry producers.

Budget Narrative – (Total $13,390.50)

Travel ($1,725.50)

Travel is required to establish partnerships, research and observe growing methods and organic opportunities of Super Berry plantations. We will also attend the annual aronia berry festival held in Sept. 2012 that includes guest speakers from around the country on the super berry potential, health benefits, marketing and organic opportunities.

Purpose of Trip: 4 trips to the X Berry Farm in City A in State B as it is the largest super berry plantation in our region. These trips would be to pick up plants, examine how the berry farm is managed, organic fertilizer options and demonstrations of the equipment needed for a super berry plantation.

Number of people travelling: 2
Number of days travelling: 2
Estimated lodging and meals: lodging $200 and meals $100
Estimated mileage: 800 miles @ $.45/mile

Purpose of Trip: Tour other alternative sustainable farms in our region to educate ourselves on how other sustainable farmers manage their acreages. This will assist in developing partnerships with other growers.

Number of people traveling: 2

Number of days travelling: 1 day
Estimated Mileage: 400 miles @ $.45/mile
Estimated lodging: Meals: $80

Purpose of Trip: Attend 3-4 sustainable garden tours such as the Horticulture Exposition held in City A in State B in the spring of each year. Such tours also exist in City C in State B.

Number of days traveling: These tours are usually 2-3 day events where guest speakers come from across the country to speak on various gardening and sustainable farming subjects.
Estimated Mileage: 850 miles @ $.45/mile
Estimated lodging and meals: 3 nights lodging $300 and meals $125

Supplies ($8,040.00)

	Grant Resources	Applicant Resources
2000 Additional Super Berry Plants @ $2.00 average wholesale cost each	$ 2,000	$ 2,000
Organic fertilizer purchase	$ 1,000	$ 1,000
Temporary, reusable plant surrounds for wildlife protection (deer/rabbits) from young berry plants 24 rolls 24" x 150' galvanized mesh wire @ $35 per roll.	$ 420	$ 420
Ground garden staples to hold caging material down 4 boxes (1000/pack) $59.99 each	$ 120	$ 120
Canning jars, pectin, sugar and items needed for recipe testing and researching marketable organic products (jams, juice blends, fruit chews, nutritional supplements)	$ 1,500	$ 1,500
Supply rental and labor to prepare ground necessary for planting, some tree removal and tillage.	$ 3,000	$ 3,000
TOTAL	**$ 8,040**	**$ 8,040**

Contractual ($3,625.00)

	Grant Resources	Applicant Resources
2 year Domain name purchase ($70.00) + Internet/hosting fees for 2 years @ $49/month	$ 625	$ 625
Website Design & maintenance: Online web portal for organic berry producers to network, share methods, growing tips, organic opportunities. (flat rate contract)	$ 3,000	$ 3,000
TOTAL	**$ 3,625**	**$ 3,625**

Project Oversight:

Jane Smith will oversee the plantings and establish partnerships, research and observe growing methods, and organic opportunities of Super Berry plantations. She will also prepare quarterly reports on the developments resulting from the activities of this project.

Project Commitment:

Having owned other successful business ventures over the years, Jane Smith Farms has always grown businesses slowly but debt free, ensuring all funds are spent wisely and

appropriately with a separate business account. These practices will be continued in order to ensure that the funds from the SCBGP are used solely for this project.

Specialty Crop Solutions for Health-Distressed Communities

Applicant:

Specialty Crop Association (SCA)

Abstract:

Generate economic models that link beginning and limited-resource farmers with diverse markets serving low-income people in the X area of the State in order to expand consumption of fresh fruits and vegetables through public education programs, farm-direct sales whenever possible, and a focus on culturally appropriate specialty crops that can be grown locally and marketed in ways that expand demand for such crops.

Purpose:

This project, which has not been submitted to or funded by another Federal/State grant program, will address public health and market access issues with ethnically valued specialty crops that can be grown by beginning and immigrant farmers in our region. Many in the region, particularly Hispanics, suffer high incidences of nutrition-related illness and obesity. More than 70% of men and 52% of women in X County are overweight or obese, higher percentages than state averages. Beginning and immigrant specialty crop farmers are uniquely geared to address the issue through direct marketing. Many of these growers rely on farmers' markets. With objectives focused on local foods promotion, grower education, unique specialty crop field trials, and greater public access to nutrition program benefits at farmers' markets; this project will increase the competitiveness of specialty crops while enhancing public health and creating resilient local markets.

It should be noted, that the SCA understands that farmers' markets and farm stands benefit more commodities than just specialty crops; however, project staff will ensure that the SCBGP funds solely enhance the competitiveness of specialty crops (SC) through specific monitoring procedures. These procedures include, but are not limited to, requiring all SC producers involved in the project to sign a standardized certification form that includes the type of specialty crop produced, exclusively listing qualified specialty crops on all campaign promotion materials and using specialty crop products for all supplies listed in the Budget Narrative, and following the procedures below for all activities associated with EBT:

1) Token Design: EBT farmers' market tokens will be printed with "**Fruits and Vegetables Only**" in both English and Spanish.
2) Market Manager and Vendor Instructions: Farmers' market managers and their vendors will receive bilingual written instructions instructing them that EBT funds resulting from this project used solely for purchase of specialty crops
3) Market Manager MOU: Markets may *only* participate if they sign a memorandum of understanding (MOU) that requires them to assure that EBT funds are solely expended on specialty crops, which is already our understanding with the markets.
4) Corrective Action: Monthly reporting by market managers will inform ongoing enforcement to assure that EBT funds are solely expended on specialty crops.

Potential Impact:

This project's design focuses on two distinct yet interconnected groups: low-income residents of farm worker communities in our region, and beginning, emerging and often limited-resource specialty crop producers. The project will impact more than 2,000 low-income individuals with opportunities and incentives to purchase ethnically valued specialty

crops such as epazote, papalo, purslane, equilites, squash flowers, and heirloom beans/squashes. In addition, 380 target specialty crop growers in the three-county region will receive reports and updates on field trials and prospective and/or proven market access for ethnically valued specialty crops among at least 10 retailers and restaurants. This project will have a direct economic impact of $224,000 in additional sales by beginning and limited-resource SC growers designed as a net increase over the current conditions of direct market access for these growers' most of whom combine low-volume/high-return direct marketing with higher volumes of products sold through wholesalers.

Expected Measurable Outcomes:

Goal 1:	300% increase in nascent retail sales of local farmer-direct crops
Performance Measure:	SCA and each Specialty Crop Grower will track their sales volume in Apr.2013, Jul.2013, Oct.2013, and quarterly thereafter
Benchmark:	$400 sales volume annually
Target:	$1200 sales volume annually
Goal 2:	Creation of five new farm stands by beginning specialty crop farmers
Performance Measure:	SCA and SC Growers will each verify their sales in Apr.2013, May 2013 and monthly thereafter
Benchmark:	5 specialty crop farm stands currently exist
Target:	$7,500 each in sales by five new specialty crop farm stands ($39,000 annually)

Work Plan:

Project will run September 2012 – December 2014.

Task 1: Leverage and expand partnerships with health agencies and businesses seeking to increase consumption of healthful foods among low-income residents.
Who: SCA **Timeline:** 12/2012 to 11/2013 (Ongoing)

a. Establish work plans, meeting schedules, and shared goals for the Healthy Foods Committee over the two-year period.
Who: SCA & Partners **Timeline:** 9/2012 to 5/2013

b. Create evaluation and reporting plans with primary partner organizations.
Who: SCA & Partners **Timeline:** 12/2012 to 5/2013

Task 2: Build upon a nascent 'Buy Fresh, Buy Local/Compre lo Fresco de Nuestra Región' local foods promotion campaign.
Who: SCA & Community Farmers **Timeline:** 9/2012 to 11/2013

a. Update campaign licensing and recruit 10 specialty crop growers and 10 food-related businesses to adopt the campaign.
Who: SCA **Timeline:** 12/2012 to 5/2013

b. Establish campaign agreements with the 20 businesses to use the campaign materials to increase local produce sales by 300%.

Who: SCA **Timeline:** 2/2013 to 5/2013

Task 3: Work with schools and faith communities to establish five (5) church or school-based farm stands that offer specialty crops specifically to low-income families.
Who: SCA **Timeline:** 12/2012 to 11/2013 (Ongoing)

a. Develop criteria for selecting institutions based on commitment, readiness, population served, and volumes.
Who: SCA & County Health Dept. **Timeline:** 12/2012 to 1/2013

b. Establish memoranda of understanding to develop parameters for time, location, legal considerations, etc.
Who: SCA & Targeting Institutions **Timeline:** 2/2013 to 4/2013

c. Partner with beginning specialty crop farmers with churches and schools for five (5) weekly farm stands targeting $300 in sales each day (5 x 26 wks/yr x $300 = $39K/yr).
Who: SCA, 5 Growers, & Target Inst **Timeline:** 5/2013 to 11/2014

Task 4: Provide agronomic education, field demonstration, and market research on culturally valued specialty crop commodities and innovative specialty crop products.
Who: SCA & 40 SC Growers **Timeline:** 2/2013 to 11/2014

a. Survey 15 specialty crop farmers and 10 prospective customers about locally viable varieties of Mexican/Latin American specialty crops.
Who: SCA & SC Consultant **Timeline:** 2/2013 to 4/2013

b. Design and execute at least six (6) annual crop trials of targeted specialty crops over two years, and conduct six (6) workshops involving 120 specialty crop growers.
Who: SCA & SC Growers **Timeline:** 2/2013 to 12/2013
2/2014 to 12/2014

c. Conduct sales and marketing analysis of potential specialty crops and/or processed foods, including product definition competition analysis, positioning, messaging, pricing, and success metrics.
Who: SC Consultant **Timeline:** 1/2013 to 6/2013

d. Partner with at least six (6) specialty crop growers to test-market Mexican/Latin American specialty crops in farmers' markets, local/regional ethnic grocers, restaurants and other medium-scale market contexts.
Who: SCA & SC Consultant **Timeline:** 3/2014 to 11/2014

Task 5: Partner with health groups and farmers' markets to create incentives for EBT enrollment and use by 2,000 people buying specialty crops directly from growers.
Who: SCA **Timeline:** 12/2013 to 11/2014 (Ongoing)

a. Establish and promote EBT, WIC, and Senior Farmers' Market Nutrition Program vouchers for use in at least nine (9) Central Coast farmers' markets.
Who: SCA **Timeline:** 12/2012 to 11/2014 (Ongoing)

b. Feature results of EBT outreach in three (3) SCA bi-lingual newsletters (reaching 500 Spanish-speaking growers and more than 1,000 partners/supporters), news releases, and four (4) conferences/meetings.

Who: SCA **Timeline:** 12/2012 to 11/2014 (Ongoing)

Task 6: Establish program monitoring and evaluation (M&E) protocols, and report project performance in a timely manner.
Who: SCA, County Health Dept Local Food Bank & Farmers' Market **Timeline:** 12/2012 to 11/2014 (Ongoing)

a. Integrate this project's goals/objectives into overall monitoring and evaluation plan for the SCA Community Food Systems Program.
Who: SCA **Timeline:** 12/2012 to 1/2014 (Ongoing)

Budget Narrative (Total $146,620.00):

Personnel ($84,320.00):

Food Systems Program Manager @ 45% FTE (**$45,000**); Program Director @ 10% FTE (**$13,000**); Communications Assistant @ 10% FTE (**$8,320**); Administrative Director @ 5% FTE (**$6,000**); SCA Organics Manager @ 10% FTE (**$12,000**)

Fringe Benefits ($29,512.00):

Calculated at 35% of Salary – Food Systems Program Manager (**$15,750**); Program Director (**$4,550**); Communications Assistant (**$2,912**); Administrative Direct (**$2,100**); SCA Organics Manager (**$4,200**)

Supplies ($4,446.00):

Office Supplies (pro-rated) (**$1,235**) for paper, color ink cartridges, toner and other supplies. Program Supplies (**$3,211**) of which $2,000 is for 20 full-color promotional banners (@$100 each) plus pro-rated amount of $1,211 for cooking demonstration supplies, food for grower workshop/field events, specialty seeds, harvest equipment, packaging and other materials

Contractual ($17,000.00):

SC Produce Sales Consultant - Survey SC farmers and customers about locally viable varieties of Mexican/Latin American SC crops & sales and marketing analysis of potential SC crops – 180 hours over six months at rate of $50/hour (**$9,000**). The Farmers' Markets– EBT – performing all activities related to EBT including monitoring for compliance with SCBGP requirements and tracking results for evaluation of growth in SC sales at Certified Farmers' Markets – 200 hours @ $40/hour (**$8,000**).

Other ($8,468.00):

Advertising (8 display ads in Spanish-language media at $162.50 each) (**$1,300**); Printing/Copying (two color print jobs for promotional materials at $650/each) (**$1,300**); Communications (pro-rated as per project) (**$1,733**); Equipment Rental (cooking demonstration cart) 4 uses @ $150/each (**$600**); Postage for newsletter (pro-rated) (**$760**); Internet and Web Site Updates to promote EBT, WIC and Senior Farmers Market Nutrition Program vouchers (pro-rated) (**$975**); Staff Development and Training (two annual marketing workshops for two staff @ average $450 each) (**$1,800**).

Indirect Cost ($2,874.00):

2 percent (**$2,874**)

Project Oversight:

The project will be overseen through well-established project management practices at the SCA Training Association. Primary oversight responsibility lies with the Food Systems Program Manager, who has more than seven years experience with SCA with more than four

years in her current position. Every SCA program uses a Monitoring and Evaluation (M&E) Plan with distinct performance measures, benchmarks and success indicators established for 2-3 distinct projects in each. Another tool for project M&E is the Workshop Planning Template that guides the goals, design, target competencies and other objectives of grower workshops. This project will also use a process wherein partner organizations are required to both initially inform and perform under shared evaluation targets. The program manager reports monthly project performance and the Healthy Local Foods committee will assess progress on a quarterly basis.

Project Commitment:

Support for the project comes from key partner organizations and municipalities in our region, including agencies that have been part of the Access to Healthy Foods Committee that SCA established two years ago. In fact, this work precisely targets the committee's primary goal to establish innovative and affordable access to fresh, culturally appropriate specialty crops primarily through farmers' markets and local/regional grocery retailers that have expressed interest in taking advantage of growing public interest in locally grown foods. Primary partners in this work include X Farmers' Markets, City of Y, Z Farmers' Market, and the City of A. In addition, the project's focus on promotion, field education and collaboration will expand the impacts of a statewide EBT initiative in farmers' markets that will take place in our region in collaboration with XYZ organization with support from the Specialty Crop Block Grant program.

Training Series to Increase Local Fruit and Vegetable Production at the Local Market

Applicant:
Specialty Crop Extension Organization

Abstract:
Educate current and potential farmers about transitioning to specialty crop production for local consumption.

Project Purpose:
In order to meet the growing demand for locally-produced, fresh fruits and vegetables in the local area, the project will support farmers that plan to convert to specialty crops by providing educational workshops and field visits to commercial vegetable/fruit farms and field trips to the State University Research and Extension Center. Particularly, the focus will be on these growers need of an agricultural enterprise that can reliably generate profit. A successful transition to a comparable crop is needed to ensure that the economic well-being of these growers is preserved. Local producers in the State were dealt an unpleasant hand last year, when their longtime buyer, Corporation A, informed the State producers that no further contracts would be issued in the State. This created uncertainty in the establishment of a buyer willing to pay a fair price for local crops. The 2007 USDA Census of Agriculture reported that at least 25 percent of the State's crop production will be affected by this change in purchaser. As such, Corporation A's withdrawal will have an incredible impact on the value of agricultural production for this area of the State.

Fortunately, the growth in the number of farmers' markets and community supported agriculture ventures in this region currently outpaces the national average and local retailers and institutional buyers continue to seek locally grown fruits and vegetables. In fact, some producers are dabbling in specialty crops like sweet corn and melons, which increasingly requires a strong educational effort to inform these farmers of the challenges that they will face in their transition. This project has not been submitted for funding elsewhere.

Potential Impact:
The local fresh fruit and vegetable market is far from saturated and this project has the potential to impact not just participating farmers, but also local consumer markets throughout the west-central region of the State. Specifically, the farmers/potential producers that participate in the project will directly be impacted by becoming more knowledgeable about production practices and marketing options. There are currently more than 150 producers in the State, and 100 of these growers are members of the Commodity of America (CA) and/or the Growers Association (GA). Also, 40 new producers (not members of CA or GA in the State) have been identified. Because the value of specialty crops in comparison to traditional row crops is considerably higher, participants that elect to pursue fruit/vegetable production over other on-farm enterprises will increase their profit potential, thereby increasing their quality of life. Most importantly, former producers will become more confident in their ability to produce and market crops with a similar economic value.

Expected Measurable Outcomes:
Participants will become more knowledgeable about production practices of various specialty crops including vegetables and fruit (**GOAL**). They will also increase their

awareness of specialty crop marketing opportunities. Currently, there is not any **BENCHMARK** data to compare this increase in knowledge or awareness; therefore, these short-term outcomes will be measured through a pre- and post-assessment of the participants' knowledge and awareness concerning production practices and marketing. We plan to achieve an increase of 75 percent in both knowledge and awareness (**TARGET**). These surveys will utilize multiple choice and yes/no questions as well as the Likert Scale in order to collect data (**PERFORMANCE MEASURE**).

Work Plan:

There are two primary parts of this project: 1) Educational Workshops held at the County University Extension Center, and 2) Two in-season Field Visits to commercial vegetable/fruit farms and Field Trips to the State University Research and Extension Center. Additionally, participants in the project will be granted admission to the 2013 Specialty Crop Conference.

Workshops (November and December 2012)

The workshops will be a concerted effort on the part of the Extension's multidisciplinary faculty, other state institutions dedicated to nurturing the furtherance of State specialty crop production (University Extension), and industry personnel. There will be a total of three 4 hour workshops.

The first workshop will cover production practices for specific specialty crops commonly seen in the local food market (corn, tomatoes, beans, melons, etc.) Participants will gain a fundamental understanding of the production schedules for these crops from transplant production to harvest. University Extension Specialists committed to presenting information on production practices and profitability include Dr. Joe Smith, Horticulture Specialist, and Dr. Jane Smith, Horticulture Specialist.

The second workshop will introduce alternative agriculture products with additional information concerning high tunnel technology. Participants will become familiarized with a host of alternative commodity (i.e. Aronia berries, ethnic vegetables, etc) production through high tunnel technology. The high tunnel ability to extend production seasons and protect crops from environmental stresses makes them practically an essential tool for sustainable, local food producers. Industry personnel that have committed to this workshop include: Mr. Bob Smith and Ms. Betty Smith of Corporation B.

The third workshop will cover numerous market opportunities to sell specialty crops: specifically, farmers markets, on-farm sales, wholesale distribution, and cooperatives. Participants will increase their understanding of the variety of avenues available to specialty crop producers for selling their products. The University Extension Specialists committed to presenting information at this workshop is Ms. Mary Smith, Community Development Specialist. The industry personnel committed to this workshop is Mr. Mark Smith of Corporation C.

Field Trips (June and July 2013)

There will be two in-season field trips to commercial vegetable/fruit farms. Participants will observe operations and gain a more complete understanding of commercial vegetable/fruit operations. This is a fundamental part of the project because many growers have indicated that they are more likely to enter into specialty crop production after they have been educated and after they have seen examples of how it is done.

Farm Visits (May 2013)

There will be two other visits to specialty crop marketing and production sites. The first visit will be to the State University Research and Extension Center to learn about specialty crop

production equipment. This trip will coincide with the May session of the Growing Growers Workshop Series. The second trip in May will be to the local produce auction site. Participants will watch as local produce and other local items are auctioned off. The auction manager has agreed to visit with the group about the auction process as well. In addition to seeing the produce auction, the Horticulture Specialist (Dr. Joe Smith) arranged two stops at specialty crop farms to visit with current growers.

Vegetable Growers' Conference (January 2014)
To supplement the education received during the workshops, participants will be granted full admission to the Vegetable Growers' Conference. This conference is coordinated by the Horticulture Specialists of State University Extension, and state specialists from four other regional universities. At this conference, participants will have the opportunity to immerse themselves into specific areas of production, harvesting, and marketing, as well as have the chance to network with fellow growers.

Project will begin in September 2012 and end in January 2014.

Budget Narrative ($12,669.00):

Personnel ($2,543.00):

University Extension Specialists Dr. Joe Smith and Dr. Jane Smith seek salary recovery consistent with their estimated time of commitment to the project. Dr. Joe Smith's estimated time spent on the project is 0.1 FTE (**$1,600**), and Jane Smith's estimated time spent on the project is 0.05 FTE (**$943**).

Fringe Benefits ($739.00):

State University's negotiated federal fringe rate is 29.05% of salary costs: Dr. Joe Smith, Horticulture Specialist (**$465**); Dr. Jane Smith, Horticulture Specialist (**$274**).

Travel ($1,667.00):

The estimated mileage for each speaker/coordinator is broken down by workshop. Mileage for these speakers is figured at the state rate of $0.55/mile traveled. Speakers will not be granted reimbursement for meals as they will have the opportunity to have a meal during the workshop (see 'Other' below).

Workshop 1:

There will be a speaker from City A (320 miles roundtrip) as well as two speakers and 1 coordinator traveling separately from City B (60 miles roundtrip per person) (**$275**).

Workshop 2:

There will be a speaker from City C (290 miles roundtrip) and two speakers travelling together from City B (60 miles roundtrip). Also, two coordinators will travel separately from City B (60 miles roundtrip per person) (**$258.50**).

Workshop 3

There will be a speaker from City C (290 miles roundtrip), a speaker from State B (240 miles roundtrip), a speaker from City A (320 miles round trip), as well as a speaker and coordinator travelling separately from City B (60 miles roundtrip per person) (**$533.50**).

It is estimated that approximately 25 farmers/potential farmers would participate in the trip to the produce auction. The round trip travel from City B to City D is estimated to range from $600-$850. We have planned for the lowest end of those estimates and request **$600** to cover the cost of chartering a bus. Though this trip will be over the lunch hour, we will require that participants be responsible for their own lunch.

Supplies ($200.00):
Because we want the information that is presented to the participants to be readily available to them and in one place, we will purchase forty notebooks at $5 (**$200**).

Other ($7,520.00):
Workshop expenses will include the price of extension publications as reference materials, printing expenses incurred by the University Extension, and meals. The facility is free for us to use. Extension publications for 40 participants will cost **$200**. Printing costs incurred by the University Extension for presentations and other resources is estimated to be **$75**. Meals for participants and presenters will be included since workshops will run from 5:00 pm to 9:00 pm. The provision of meals will maintain the continuity of the workshop and reduce the time needed to conduct the workshop. For 40 participants plus 5 organizers/speakers at $7/meal for 3 workshops, total meal expenses are **$945**.

For evaluation purposes, the expenses incurred for stationary, printing, and postage is estimated to be **$100**.

The Vegetable Growers' Conference is a three-day conference where participants will be granted admission to the conference; however, they are responsible for their own travel, accommodation, and meals. A community supported agriculture session will be held on Thursday ($65), while a wide array of breakout sessions will be held on Friday and Saturday ($35 each). It is estimated that there will be 40 participants for this conference (**$5,400**).

Our effort to publicize the project will encompass a variety of avenues including print, radio, and electronic forms of communication. Flyers will be produced to highlight the schedule of activities and solicit registrations. The cost for producing the flyers will be incurred by the University Extension (**$200**).

The Growing Growers workshop is held at the State University Horticulture Research and Extension Center outside of City F where participants (40) can see demonstrations of various production practices. Participants will be responsible for their own transportation to this event. Registration for this workshop is $15 per participant (**$600**).

Project Oversight:
State University currently monitors more than $200 million in grant expenditures from federal, state and other sources. It maintains a post award staff at division and system levels (in addition to many department levels) to ensure that expenses incurred are appropriate, allocable and allowable. The University conforms to state and federal compliance regulations such as the cost principles for college and universities (2 CFR 220 – OMB Circular A-21). The activities for the project will also be overseen by University Extension Specialists. Dr. Joe Smith and Dr. Jane Smith regularly host workshops and work with producers on a daily basis. Smith will be responsible for project advertisement, production of handouts, meals for workshops, evaluation, travel arrangements, and organizing the workshops. Smith will work with Smith in advertising and evaluating the project, organizing the workshops, and will be responsible for arranging field visits to commercial farms.

Project Commitment:
The University Extension is dedicated to increasing the quality of life all these growers over the course of this project. Specifically, the Extension field staff is very committed to seeing that these growers can replace their income. The team of educators that have already been identified readily communicated their interest in participating in this project. By bringing

together Extension, the State, and industry personnel for this common goal, we feel that we can deliver a high-caliber program that complements the capacity of local agents.